



Year 2006

Air Quality Division

ANNUAL AIR EMISSIONS INVENTORY QUESTIONNAIRE

Soil Vapor Extraction Units (SVEU)

The 2006 SVEU Annual Emissions Inventory Questionnaire includes 4 forms that are required to be completed & submitted to the Air Quality Division. Instructions for each form are included below. Upon completion, submit all forms along with the signature by the Responsible Official of the facility within 90 days of receipt of the letter from the Department to the address below.

FORM 1: Facility General Information

Complete all information as requested.

FORM 2: Equipment, Stack, & Location Data

- Table 1: List all information for the SVEU operating at the facility. Include the Authorization To Operate (ATO) number for all permitted equipment. Indicate, if not available.
- Table 2: List details of each stack on the equipment.
- Table 3: If the portable equipment was moved from one location to another, list the dates, the cities & counties, the latitude & longitude or address/driving directions for the portable equipment that was operated during the year 2006.

FORM 3: Emissions Calculations

- SVEU Emissions: Based from your Lab test results, input hours of operation (for the time period of test), effluent concentration (ppm by volume), and flow rate (ft³/min). A sample of the calculations are provided on page 7.
- Burning Fuel Emissions: Based on the fuel used (Natural Gas or Liquid Propane), choose the appropriate table to input the equipment heat input rate and hours operated in the year 2006. If you used electrical energy to operate your equipment, then you can skip this part of calculations.
Once data is inputted, the formulas are set to complete the calculations. Therefore, do not move or change any of the fields or columns. If moved the results will be wrong calculations.

FORM 4: Summary & Certification

A summarization of all the emissions by each pollutant will be listed within this form. All reports submitted to the Department should be certified true and accurate by the Responsible Official of the facility. This person is the owner or operator of the facility. **If there is a change of the Responsible Official of the facility, please notify the Department with an additional letter stating the change.**

If you have any question or have difficulty completing this form, please contact Darlene Celaya at (602) 771-7662.

**Arizona Department of Environmental Quality
Attention: Darlene Celaya, Emission Inventory Team
Air Quality Division, Compliance Section 3415A-3
1110 West Washington Street
Phoenix, AZ 85007**

SECTION I: *Plant Identification & Mailing Information*

Customer Name: _____

Place Name: _____ Place ID # : _____

Mailing Address: _____ City: _____ State: _____ Zip: _____

County: _____

Phone: _____ Fax: _____

Permit # or LTF #: _____ General Permit: Yes ☐ No ☐**SECTION II: *Emissions Inventory Contact***

Name: _____ Title: _____

Phone: _____ Fax: _____

SECTION III: *Confidential Request*

Pursuant to Arizona Revised Statutes §49-432 and §49-201, do you claim the Emissions Inventory data submittal confidential.

Yes ☐ No ☐

If yes include which portions of the inventory are confidential along with a brief explanation:

Table 1: Equipment Information

	Unit #1	Unit #2
Equipment ID		
ATO#		
Energy Source - natural gas, propane, or electrical		
Manufacturer Rated Capacity (ppmv)		
Actual Hours Operated (hours/year)		

Table 2: Stack Information

	Stack #1	Stack #2
Height (feet)		
Diameter (feet)		
Velocity (feet/second)		
Combustion Temperature (F)		
Average Flow Rate (actual cubic feet per minute)		

Table 3: Location

Date		City & County of Operation	Latitude	Longitude	Address or Driving Directions
From	To				

FORM 3: EMISSIONS CALCULATIONS
YEAR 2006
Emissions from Contaminated Soil

Sampling results #1 Date	Hours of Operation	Pollutant	EPA 8015 & 8021 Effluent ppm by vol	Molecular Weight	Maximum Concentration ug/L	Flow Rate ft ³ /min	Annual Emissions tons/year
		VOC		100			
		Benzene		78.11			
		Toluene		92.16			
		Ethylbenzene		106.16			
		Xylene		106.16			

Sampling results #2 Date	Hours of Operation	Pollutant	EPA 8015 & 8021 Effluent ppm by vol	Molecular Weight	Maximum Concentration (ug/L)	Flow Rate (ft ³ /min)	Annual Emissions tons/year
		VOC		100			
		Benzene		78.11			
		Toluene		92.16			
		Ethylbenzene		106.16			
		Xylene		106.16			

Sampling results #3 Date	Hours of Operation	Pollutant	EPA 8015 & 8021 Effluent ppm by vol	Molecular Weight	Maximum Concentration (ug/L)	Flow Rate (ft ³ /min)	Annual Emissions tons/year
		VOC		100			
		Benzene		78.11			
		Toluene		92.16			
		Ethylbenzene		106.16			
		Xylene		106.16			

Sampling results #4 Date	Hours of Operation	Pollutant	EPA 8015 & 8021 Effluent ppm by vol	Molecular Weight	Maximum Concentration (ug/L)	Flow Rate (ft ³ /min)	Annual Emissions tons/year
		VOC		100			
		Benzene		78.11			
		Toluene		92.16			
		Ethylbenzene		106.16			
		Xylene		106.16			

Sampling results #5 Date	Hours of Operation	Pollutant	EPA 8015 & 8021 Effluent ppm by vol	Molecular Weight	Maximum Concentration (ug/L)	Flow Rate (ft ³ /min)	Annual Emissions tons/year
		VOC		100			
		Benzene		78.11			
		Toluene		92.16			
		Ethylbenzene		106.16			
		Xylene		106.16			

Sampling results #6 Date	Hours of Operation	Pollutant	EPA 8015 & 8021 Effluent ppm by vol	Molecular Weight	Maximum Concentration (ug/L)	Flow Rate (ft ³ /min)	Annual Emissions tons/year
		VOC		100			
		Benzene		78.11			
		Toluene		92.16			
		Ethylbenzene		106.16			
		Xylene		106.16			

Sampling results #7 Date	Hours of Operation	Pollutant	EPA 8015 & 8021 Effluent ppm by vol	Molecular Weight	Maximum Concentration (ug/L)	Flow Rate (ft ³ /min)	Annual Emissions tons/year
		VOC		100			
		Benzene		78.11			
		Toluene		92.16			
		Ethylbenzene		106.16			
		Xylene		106.16			

Sampling results #8 Date	Hours of Operation	Pollutant	EPA 8015 & 8021 Effluent ppm by vol	Molecular Weight	Maximum Concentration (ug/L)	Flow Rate (ft ³ /min)	Annual Emissions tons/year
		VOC		100			
		Benzene		78.11			
		Toluene		92.16			
		Ethylbenzene		106.16			
		Xylene		106.16			

Sampling results #9 Date	Hours of Operation	Pollutant	EPA 8015 & 8021 Effluent ppm by vol	Molecular Weight	Maximum Concentration (ug/L)	Flow Rate (ft ³ /min)	Annual Emissions tons/year
		VOC		100			
		Benzene		78.11			
		Toluene		92.16			
		Ethylbenzene		106.16			
		Xylene		106.16			

Sampling results #10 Date	Hours of Operation	Pollutant	EPA 8015 & 8021 Effluent ppm by vol	Molecular Weight	Maximum Concentration (ug/L)	Flow Rate (ft ³ /min)	Annual Emissions tons/year
		VOC		100			
		Benzene		78.11			
		Toluene		92.16			
		Ethylbenzene		106.16			
		Xylene		106.16			

Sampling results #11 Date	Hours of Operation	Pollutant	EPA 8015 & 8021 Effluent ppm by vol	Molecular Weight	Maximum Concentration (ug/L)	Flow Rate (ft ³ /min)	Annual Emissions tons/year
		VOC		100			
		Benzene		78.11			
		Toluene		92.16			
		Ethylbenzene		106.16			
		Xylene		106.16			

Sampling results #12 Date	Hours of Operation	Pollutant	EPA 8015 & 8021 Effluent ppm by vol	Molecular Weight	Maximum Concentration (ug/L)	Flow Rate (ft ³ /min)	Annual Emissions tons/year
		VOC		100			
		Benzene		78.11			
		Toluene		92.16			
		Ethylbenzene		106.16			
		Xylene		106.16			

Example of annual emission calculations in tons/year:

[Maximum Conc.(ug/L)] X [Mass/Volume Conversion Number (0.00000006243)] X [Flow Rate (ft³/ min)] X [minute per hour (60)] X [hours of operation (hours/year)]

[(2000) pounds per ton]

Maximum Concentration = [Effluent Concentration (ppm by vol)] x [molecular weight]/24.04

*where the "molecular weight/24.04" is a conversion factor for ppm by volume to milligrams (found in AP-42 , Appendix A, "Conversion Factors for Common Air

Pollution Measurements," page A-27

Emissions for Burning Fuel

Conversion Factors - 1 Therm = 100,000 BTUs. 1 MMBTU = 1,000,000 BTUs. 1HP-hr = 2546.15 BTUs

	FUEL - NATURAL GAS		FUEL - PROPANE	
	Max. Rated Capacity MMBtu-hour (1)	Operational Hours hours/year (2)	Max. Rated Capacity MMBtu-hour (4)	Operational Hours hours/year (5)
Pollutants	Emission Factor pounds/MMBtu (3)	Emissions = (1)x(2)x(3)/2000 tons/year	Emission Factor pounds/MMBtu (6)	Emissions = (4)x(5)x(6)/2000 tons/year
PM	0.0075		0.0066	
PM10	0.0075		0.0066	
NOx	0.0980		0.2077	
SOx	0.0006		-	-
VOC	0.0054		0.0033	
CO	0.0824		0.0350	
Acenaphthene	1.76E-09		-	-
Acenaphthylene	1.76E-09		-	-
Anthracene	2.35E-09		-	-
Arsenic	1.96E-07		-	-
Benz(a)anthracene	1.76E-09		-	-
Benzene	2.06E-06		-	-
Benzo(b)fluoranthene	1.76E-09		-	-
Benzo(g,h,i)perylene	1.18E-09		-	-
Benzo(k)fluoranthene	1.76E-09		-	-
Beryllium	1.18E-08		-	-
Butane	2.06E-03		0.0022	
Cadmium	1.08E-06		-	-
Chromium	1.37E-06		-	-
Chrysene	1.76E-09		-	-
Dibenzo(a,h)anthracene	1.18E-09		-	-
Dichlorobenzene	1.18E-06		-	-
Ethane	3.04E-03		-	-
Fluoranthene	2.94E-09		-	-
Fluorene	2.75E-09		-	-
Formaldehyde	7.35E-05		-	-
Hexane	1.76E-03		-	-
Indeno(1,2,3-cd)pyrene	1.76E-09		-	-
Lead	4.90E-07		-	-
2-Methylnaphthalene	2.35E-08		-	-
Manganese	3.73E-07		-	-
Mercury	2.55E-07		-	-
Methane	2.25E-03		-	-
Molybdenum	1.08E-06		-	-
Naphthalene	5.98E-07		-	-
Selenium	2.35E-08		-	-
Toluene	3.33E-06		-	-

FORM 5: SUMMARY & CERTIFICATION**YEAR 2006**

Total all the emissions for each pollutant and enter in the table below.

Pollutant	Tonnage (tons per year)
Particulate Matter (PM)	
Particulate Matter Less Than 10 Microns (PM10)	
Nitrogen Oxides (NOx)	
Sulfur Oxides (SOx)	
Volatile Organic Compounds (VOC)	
Carbon Monoxide (CO)	
Hazard Air Pollutants (HAPs)	

Certification of Truth & Accuracy

I certify that based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.
All information not identified by me as confidential in nature shall be treated by the Arizona Department of Environmental Quality as public record.

Signature of Responsible Official:

Date:

Print Name:

Title: